Certain orchids have been cited as indices of the xerophytic nature of bog habitats. *Calopogon* is a typical bog orchid. That it is able to persist in this undoubtedly xerophytic black oak association might appear to some to be a good proof of the xerophytic character of this species. I cannot believe, however, that this is the case. That it is able to persist at all is no doubt due to the greater accumulation of moisture at the base of the oak, with the possible further advantage of a certain degree of shade, although this species typically occurs in the open. If the plant is xerophytic it should be able to persist in the open dried-up swamp, where it does not. In nearly all the plants observed here the leaf was dead and shriveled for about an inch from the apex. A greater degree of shading will, however, certainly eliminate this species, and it is evident that it must eventually disappear as the surrounding vegetation becomes more dense.

CHICAGO, ILL.

SHORTER NOTES

A NEW SENECIO FROM CUBA.—In the writer's recent paper on "New Species of Cuban Senecioneae" *Senecio pachylepis* was contrasted with *S. eriocarphus*. Both species were characterized from specimens secured by Mr. J. A. Shafer during his botanical explorations in eastern Cuba but the description of the latter species was unfortunately omitted. It may be recorded as follows:

Senecio eriocarphus Greenman, n. sp. Caulis lignescens 1.5–2.5 dm. altus; ramulis ultimis juventate teretibus dense hirsuto-tomentosis; foliis alternis petiolatis coriaceis oblongo-obovatis vel oblanceolatis 2.5–8 cm. longis .5–3 cm. latis supra glabris subtus primum tomentulosis mox glabratis vel in nerviis plus minusve persistenter pubescentibus ad apicem acutis vel obtusis integris remote sinuato-dentatis, marginibus plerumque revolutis; petiolis usque ad 1.5 cm. longis plus minusve hirsuto-tomentosis; inflorescentiis terminalibus dense cymosis sessilibus fulvo-tomentosis; capitulis calyculatis discoideis; squamellis calyculatis linearis vel subspathulatis 3–5 mm. longis; involucri squamis 8

lanceolatis vel oblongo-lanceolatis 4–6 mm. longis acutis vel obtusis extrinsecus dense lanato-tomentosis; floribus 10–12; pappi setis ca. 4 mm. longis; acheaniis striatis hirtellis. On trail from Camp Toa to Camp La Barga, Province of Oriente, Cuba, altitude 400–450 m., 22–26 February, 1910, *J. A. Shafer*, No. 4149 (herbarium Field Museum, catalogue No. 294789, herbarium N. Y. Bot. Gard., fragment and photograph in herbarium Mo. Bot. Gard.); Camp La Gloria, south of Sierra Moa, Province of Oriente, Cuba, 24–30 December, 1910, *J. A. Shafer*, No. 8257 (herbarium Field Museum, catalogue No. 294806, herbarium N. Y. Bot. Gard., fragment and photograph in herbarium Mo. Bot. Gard.

The species here characterized resembles *Senecio pachylepis* Greenm., but differs in the character of the tomentum, in the conspicuously wooly bracts of the involucre, and in the slender bracteoles.

J. M. GREENMAN

MULE AS A BOTANICAL TERM.—In *The Botanic Garden*, containing the "Loves of the Plants," which is also entitled "A Poem with Philosophical Notes," there occurs an old but now little known use of the word *mule* to designate a hybrid.

This unsigned poem published by J. Moore, of Dublin, in 1790, contains among the copious annotations of this fantastical and most amorous life of the flowers many curious statements and theories. Though given in the larger dictionaries, many students of botany state that they have never heard the term *mule* used for a plant hybrid. It seemed, therefore, worth while to reprint part of one of the footnotes containing the word.

"There is a kind of pink called Fairchild's mule, which is here supposed to be produced between a *Dianthus superbus*, and the *Caryophyllus*, Clove. The *Dianthus superbus* emits a most fragrant odour, particularly at night. Vegetable mules supply an irrefragable argument in favour of the sexual system of botany. They are said to be numerous; and, like the mules of the animal kingdom, not always to continue their species by seed. There is an account of a curious mule from the *Antirrhinum linaria*, Toad-flax. . . . Amongst the English indigenous plants,

the veronica hybrida mule Speedwel is supposed to have originated from the officinal one; and the spiked one and the *Sibthorpia Europaea* to have for its parents the golden saxifrage and the marsh pennywort. . . . Mr. Graberg, Mr. Schreber, and Mr. Ramstrom, seem of the opinion, that the internal structure or parts of fructification in mule plants resemble the female parent; but that the habit or external structure resembles the male parent. . . . The mule produced from a horse and the ass resembles the horse externally with his ears, mane, and tail; but with the nature or manners of an ass: but the Hinnus [hinny], or creature produced from a male ass, and a mare, resembles the father externally in stature, ash-colour, and the black cross, but with the nature or manners of a horse."

JEAN BROADHURST

REVIEWS

Ganong's The Living Plant*

This book is the second number in division III, Functions of Nature, of The American Nature Series, the first number being Beebe's "The Bird." It is the announced aim of the series as a whole to furnish "a series where the nature-lover can surely find a readable book of high authority"; and the books of the third division of the series "treat of the relation of facts to causes and effects—of heredity and the relations of organism to environment."

The author's experience as a teacher, and as an investigator and writer, admirably fitted him for the preparation of this work. It was not an easy task; not as easy as might at first be imagined, for while "botany" is, in a sense, a popular science, its popularity diminishes approximately as the square of the distance from the "how-to-know-the-wild-flowers" phase of it, from which the book under review is a wide departure.

The book is unique, being the only attempt (so far as known to the reviewer) to popularize the entire range of plant physiology.

* Ganong, William F. The Living Plant. A Description and Interpretation of its Functions and Structure. Pp. i–xii + 1–478. *f. 1–178.* New York, Henry Holt & Company, 1913. Price $3.50 net.